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No. 21386

AN INAUGURAL DISSERTATION

ON THE

CATAMENIA;

SUBMITTED

TO THE EXAMINATION

OF

THE REVEREND JOHN EWING, S. T. P. PROVOST;

THE TRUSTEES

AND MEDICAL FACULTY OF THE UNIVERSITY OF PENNSYLVANIA,

ON THE TWENTY SEVENTH DAY OF MAY, 1802.

FOR THE DECREE OF DOCTOR OF MEDICINE.

BY HUGH WHITEFORD,

OF MARYLAND, HONORARY MEMBER OF THE
PHILADELPHIA MEDICAL SOCIETY.

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Omnia vincit amor; et nos cedamus amori. VIRG.

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TO JOHN ARCHER SEN. M. B. OF MARYLAND;

WHO, to an advanced period of life, has practised the healing art with the most ample success; the result of which has been an established reputation, which, with the innumerable blessings of thousands, who have been relieved of their afflictions by the instrumentality of your superior judgment, will be a source of ineffable comfort to the latest period of your life. Your acceptance, therefore, of the inscription of this dissertation, the inaugural fruits of my studies, began under your auspices, will add to the gratitude and esteem of your friend and pupil

HUGH WHITEFORD.

TO JOHN ARCHER JUN. M. D. OF MARYLAND.

SIR,

ACCEPT this as a grateful remembrance of the kind offices and friendly instructions you so liberally bestowed on me, while a student with your worthy father.

Your sincere friend

HUGH WHITEFORD.

INTRODUCTION.

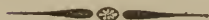
PERHAPS it may excite admiration, that I should make choice of the catamenia, for the subject of an inaugural inquiry. This will more certainly happen when it is recollected, how much has been already said on the subject by old and experienced writers. But above all, the natural and true supposition, that little knowledge of the subject could have been obtained from personal observation, will tend to excite prejudice. Yet I hope for a candid indulgence, while I exercise the right of choosing my subject, and the liberal privilege granted to the candidates for medical honours, in this university, of advancing their own opinions ; and as the catamenia is still, and likely to continue a subject of controversy, my confidence in being indulged is to a certain degree heightened.

Though there be little novelty in these speculations, yet, in the language of a celebrated surgeon, Mr. Pearson, it will be seen, “ that I have neither servilely imitated nor fastidiously

rejected the labours of our predecessors. While I have endeavoured to avail myself of their assistance, I have also assumed the liberty of thinking for myself." Should this interesting physiological phenomenon be divested of some of its absurd hypotheses, and those only retained, which may seem best authenticated, my most sanguine expectations will be answered.

The philosopher, whose exalted mind is always elevated above trifles, need only be reminded of his lenity in overlooking inaccuracies, with which I am confident this peice abounds. But with the petulant critic, who, like a monopolizing tyrant, would spurn at my most earnest intreaties, it is useless to expostulate.

GENERAL REMARKS
ON THE
CATAMENIA.



THAT function of the uterus, whereby it periodically discharges a greater or less quantity of blood, has been known by many unmeaning names. It was called terms by Boerhaave; courses by some; and flowers by many others. By modern writers, it is indifferently, but with more propriety termed the Catamenia, Menfes, or Menstruation. These appellations it has justly acquired, on account of its periodical appearance being nearly every lunar month.

The period of life, when this curious and interesting function commences, varies according to climate, constitution and state of society in the same climate. In this country, it is generally supposed to commence between the age of thirteen and sixteen. But as it sometimes comes on before, and frequently after those years, we will meet with many exceptions to this rule. The period of its total cessation is as irregular as that of its commencement; of course we can affix no stated time to its routine.

The quantity of each menstrual discharge differs considerably in different persons, being from three to five ounces ; and we are told, in some, to an entire pound. The time, necessary for one menstrual discharge, varies from two to five days.

Another circumstance, not more curious than true and interesting, is, that both before the commencement and after the cessation of the menses, women are not susceptible of impregnation. This, therefore, is one great reason why we are led to believe it necessary to prepare the uterus for conception. But of this we will take notice hereafter.

From these circumstances we are naturally led to enquire into the cause, periodical return, and use of menstruation ; we shall therefore appropriate a separate section to the consideration of each of those divisions of our subject.

SECTION I.

Of the Cause of Menstruation.

THE production of the menses has been attributed to various causes. It was once supposed to be the offspring of a peculiar ferment in the blood, which was said to produce a particular effervescence or ibullition in the circulation ; by

which means the blood was attenuated and heated to a certain degree. The circulation being thus accelerated, part of the volume of blood was forced through the arteries of the uterus, and the catamenia was produced. This hypothesis, in the present enlightened age, is justly discarded: it would therefore be a trespass on time, to refute an opinion, which all agree to pronounce absurd.

Another opinion, not more plausible than the former, has been held forth by some. They supposed that the female constitution was so depraved as to require this periodical evacuation; or, as they called it, purgation, to discharge offending matters, which were constantly accumulating in the blood. But as we are acquainted with no power, of which the animal œconomy is possessed, whereby she could so miraculously determine those imaginary offending matters particularly to the uterus, and thence expel them in so small a quantity of blood, we are forced to renounce this opinion.

Others again, who thought they had discovered the whole mystery, found an imaginary sinus in the uterus, serving the purpose of a reservoir for blood constantly oozing from the mouths of the uterine arteries. This receptacle during the ordinary menstrual period was filled; then by some effort of the uterine system was evacuated, its contents discharged through the vagina, and menstruation effected. But, as no

such sinus can be discovered, this theory is inadmissible. Even admitting the existence of such a sinus, still the doctrine is insupportable ; because, when blood is collected into a stagnant mass, in any part of the body, it either produces mortification or becomes clotted from the absorption of its more fluid parts. But menstrual blood is never found in a grumous state, unless it has been impeded by an imperforated hymen.

The next opinion we will notice, is one advanced by doctor I. B. Davidge, of Baltimore, in a latin essay, published a few years since at Birmingham. He is of opinion, that the ovaria, by being productive of the venereal appetite, serve as a stimulus to the uterus, and thus excite it to secrete the catamenia. This theory, though ingenious, and supported by so eloquent an author, I cannot admit: because the infant has ovaria, but is not sensible of this passion, until a nearer approach to maturity. The infant also is supplied with the organs of seeing and hearing, yet it neither sees nor hears, or is insensible of those functions. Now as it is certain, that the eyes and ears are the organs, through which the various sounds, produced by the tremulous undulations of the air, and the appearance of the various objects in nature, produced by the refraction of the rays of light, are conveyed to the sensorium ; so also, the ovaria are the avenues, through which this passion arrives at its place of destination, the mind. The principle argument adduced by Doctor

Davidge, in support of his opinion, is deduced from an accident, which happened in the hands of Mr. Percival Pott, who by mistake cut away the ovaria of a woman. A total loss of venereal desires and an entire suppression of the catamenia were the consequence. No more occurred here than happens in consequence of the loss of the eyes or ears: in the one the mind can no longer be actuated by the pleasing objects of sight or hearing; and as far as relates to them can no longer re-act on the body. In the other, namely, the loss of the ovaria, the mind is deprived of those pleasurable sensations arising from venereal desires, and in that respect loses its influence on the body.

From those analogies then, it appears that the ovaria do not immediately stimulate the uterus; but that the mind, by the intervention of the ovaria, is supplied with venereal propensities, and according as they are excited, it is stimulated to re-act on the body, and in a particular manner on the uterine system. This I shall have occasion to notice hereafter.

As to the notion of menstruation being a secretion, the only argument, advanced in its favour by doctor Davidge, is that the blood is not coagulable. This, on the authority of him and others we grant; but from other phenomena in the animal œconomy, the opinion appears no more than a mere creature of the imagination. We learn, from the authority of Mr. John

Hunter, and the experience of every medical gentleman, that blood extravassated into cellular membrane is scarcely coagulable; and the flow-er it runs from a vessel, its power of coagulation is proportionably diminished. These are facts, which have gained universal assent; and who would call extravassation and blood-letting, se-cretions? The smaller the orifice therefore, through which blood passes, it is less coagula-ble; we may safely conclude then, that blood may be forced through an aperture, so small, as to be deprived of its coagulating property. Even lymph itself, extravassated into the ventricles of the brain, is deprived of its power of coagulation, owing to the small size of the vessels. But further; it is proved, by the experiments of Mr. Hewson, that rest and air are necessary to the coagulation of coagulable lymph, and that neutral salts and agitation prevent it. The best idea then of menstrual blood we can form, is to conceive of its being minutely divided, while discharging from the uterine vessels; and after its extravassation, till its entire elimination from the body, without the influence of air; add to this, its mixture with a saline fluid which lubricates the parts. If this idea be just, the want of coagulation in menstrual blood is explained, and the supposition of its being a secretion disproved.

The theory of plethora, which since the time of Galen, has prevailed more or less universal-ly, next claims our attention. It is one which

has gained the approbation of a large proportion of medical philosophers, ever since the time of its venerable author. As examples of its illustrious patrons, it is only necessary to call to our recollection a Cullen and a Rush. In stating the reasons, which prevent my full adoption of this doctrine, I will be satisfied to bear the censures of the rest of the world, should I be so fortunate as to gain the indulgence of our justly celebrated teachers in this university.

Plethora, which is said to produce the menses, is supposed by some to be general; by many local, which they call congestion; and by others both general and local. The objections to universal plethora, being the cause of menstruation, are so numerous, that I am constrained to deny it in toto.

When we adopt this universal cause, we of course must expect to find another cause, adequate to the production of it, at the time of life when the menses commence, rather than at an earlier period: but no such cause seems to exist. Again, if the menses were indebted to general plethora for their production, those females only, who are of a full and plethoric habit, would menstruate; whereas in those of a contrary habit the menses would never appear. But it would be a subversion of the ordinary cause of nature, should a part only of the female sex be blessed with the catamenia.

To illustrate more fully the weakness of the plethoric system ; let us for a moment imagine it to be the true cause ; suppose further that this plethora equalled eight ounces, which was regularly discharged from the uterus every twenty eight days. It would follow then, if this superabundant portion of blood were taken from a vein, at the commencement of a menstrual period, that they would not flow until the next regular period ; if sixteen ounces were drawn at this time, the menstrual discharge would be protracted for two months. But the loss of blood neither changes the time nor diminishes the quantity of the menses. There are cases related, where the loss of a very large quantity of blood, even ten pounds, did not effect any change in the time or quantity of this discharge.

From the supposition, that general plethora is the cause of menstruation, it is thought, that it owes its temporary cessation to the reduction of this plethora by means of its own discharge. Were this the case, blood-letting a very certain mode of reducing plethora, might be so used, as to prevent a menstrual flow at all times.

The farther we advance in the examination of this doctrine, the more mysterious it appears. The idea of the female œconomy possessing a power of preparing a superfluous quantity of blood, and thus inducing plethora, is a mystery, inexplicable on any known principles in physiology : because men, having no menstrual dis-

charge, and being in possession of all the resources of plethora, that women have, would be proportionably more plethoric.

The doctrine of universal plethora, being of itself inadequate to explain the production of the catamenia, has undergone, as was hinted before, several modifications. To general, some have added, local plethora, or topical congestion in the uterine vessels. This, though making a nearer approach to truth, is nevertheless, in part liable to all the objections opposed to general plethora; which for this reason is now entirely discarded by many, who retain only local plethora, or topical congestion. This being a still nearer approach to truth, is deficient in one very material point, namely, a reasonable cause to produce this congestion. The causes, hitherto assigned for this determination, have been mechanically hypothetical, or its effects have been mistaken for the cause. To account for this congestion, or, more properly speaking, determination to the uterus, will employ the remainder of this section.

Before we proceed farther, it will be necessary to take a view of the theory of the late unfortunate, though justly celebrated doctor John Brown. This can be best accomplished in his own words; "The cause of menstruation," says the author of the *Elements of Medicine*, "is a conformation of the vessels that pour out blood in this discharge, taking place at a certain time of

life, that is about the age of puberty, and a stimulating energy in women, more powerful than in the female of any other species."—Whether this energy, or venereal desire is more powerful in women, than in other female animals, is not for me to determine, as it does not affect our purpose. As to the conformation of vessels, it appears entirely dependent on the venereal appetite; which, by producing a determination to the uterus, at length effects this conformation in the size of the vessels.

Thus then we have a chain of causes, necessary to the production of this important function, one depending on the other, and finally derived from the venereal appetite; which, through the medium of the brain, in common with the other faculties of the mind, re-acts on the whole body, and particularly on the genital system, producing in the uterus a particular determination, engorgement, or, if you please topical congestion: this determination effects a conformation, or enlargement of its vessels, which at length are relieved of their engorgement, by that transfusion of blood, called menstruation.

By the adoption of this opinion, this important physiological phenomenon is divested of some of its hypothetical, not to say absurd theories; and the contending theories of plethora and the venereal appetite, meet and become reconciled. But how far my feeble attempt will go towards its establishment, I leave to a candid public to determine.

That passion, or propensity to amatorial copulation, which in conjunction with esteem and friendship constitutes a delightful and heavenly attribute of human nature, namely, virtuous love for the other sex, is given us at an early period of life, not only for our temporary happiness, but that the human race, by its agency, might increase and multiply. Thus the extinction of man, the inevitable consequence of the abstraction of this creative stimulus, is prevented.

I am not altogether singular in the opinion, that females as well as males acquire this propensity a considerable time before puberty. A strict observer of human nature, the author of the *Wanderings of William*, informs us, "that this passion is unconquerable, and is felt from the girl of ten, whose little heart flutters at the approach of a beau, to the staid matron of three score, who cannot read without spectacles." We learn also, in a book entitled the *Looker-on*, that "woman was made for love, and is inspired, almost from her cradle, with its secret propensities."

To determine satisfactorily to myself, whether this passion preceded menstruation, besides strictly observing the words and actions of our young females, I made it a practice, whenever an opportunity offered, and the modesty of some of our old midwives in the country was not so scrupulously strict, as to forbid such conversation, to lead them on, at first by slight insinuating

questions, until at length, they would become very explicit on the subject. Whenever I thus succeeded in leading them into a free communication on this subject, which they supposed to be already known and decided upon among physicians, I uniformly found my conjectures to be well founded. By this mode of proceeding I learned more than I suspected; viz. that about the time of the first menstrual discharges, the venereal glow was at its highest pitch. This is fully corroborated by Dr. Wallace in his inaugural dissertation, where he says, at this time, "they are affected to a degree bordering on nymphomania." In a letter from my worthy preceptor, whose accuracy in observation is inferior to none, I am happy to find it his opinion, "that venereal desires long precede menstruation." In another, from my friend doctor John Archer junr. who, at my request politely engaged in enquiries, similar to those above mentioned, I am favoured with the same result.

Those who are of opinion, that the venereal glow is preceded by the menses, grant that it is felt about the same time; but they go farther, and say, that this discharge, by exciting the ovaria into action, becomes the exciting cause of venereal desires. But when we consider, that the ovaria and testes answer nearly the same purpose, in the different sexes, and admit the necessity of menstruation to excite one into action, we must also expect a similar cause to operate in the same manner upon the other; the conse-

quence would be a menstrual discharge in men. It appears pretty certain then that venereal desires are the proper stimulus to both ; that they are not only the primary cause of menstruation, but also of all those changes that take place in the system, about the time of its commencement.

The faculties of the mind have been called the internal senses, because the external senses are the principal avenues that lead to them. The passions, being faculties of the mind, are also dependant on the instrumentality of the senses, for their existence ; from what happens to animals, who, in early life are deprived of the ovaria or testes, it is evident, they are also necessary to produce venereal desires.

From some cause, perhaps the softness of the brain, children are insensible of any impressions made on it. But they, by repeated appulses, become gradually sensible to those impressions, through the organs of sense, and a gradual evolution of the faculties of the mind ensues. Motion, sensation and thought, the proper characteristics of animal life in a state of perfection, are, in a great measure dependant on the faculties and operations of the mind, for their existence ; and as animal life depends on the application and action of appropriate stimuli ; it is very logical to conclude, that they also depend on, or are the effect of a stimulating power. However, it is agreed on all hands, that they react on the body ; and no one will deny, that venereal

desires have a powerful influence on the genital system.

A stimulus, if sufficiently powerful, to whatever part of the body it be applied, determines an unusual quantity of blood to the seat of its action. The uterine system therefore, being the theatre in which the venereal appetite displays its wonderful performances, is particularly distended with blood. Hence the evolution or enlargement of the vessels of the uterus, which are at length relieved of their engorgement by an effusion of blood. There is a striking analogy between this evolution of vessels and other phenomena that occur in the animal œconomy. For example; in cancers, besides the enlargement of some, there is an entire evolution of other vessels. When the principal artery of a limb is destroyed by the extirpation of an aneurism, or by any other means, the remaining small branches expand sufficiently wide for the transmission of a necessary quantity of blood.

Now when we take into consideration, that the arteries of the uterus terminate in minute ramifications on its sides; that the blood, by the aforementioned stimulus, is particularly determined to them; and, that this determination effects a proper evolution of its arteries, it is easy to conceive how a transfusion of blood is at last effected.

SECTION II.

Of the regular recurrence of the Menses.

THE Cause of the regular recurrence of the menstrual discharge, at the time of the first introduction of the plethoric theory by Galen, was supposed to be the gradual accumulation of this fulness, until at last, in the course of about twenty eight days, it became so abundant as to be forced through the weaker vessels, which were supposed to be those of the uterus. Thus the cause of menstruation, and its periodical recurrence were, as they thought, at once explained: indeed, were the plethoric theory well authenticated, this is the only rational explanation of the fact. But as one part of the doctrine has been shewn, when treating of the cause of menstruation, to rest on a very unstable foundation, the other appears still more so; insomuch that the advocates for the plethoric production, have entirely relinquished the opinion of the regular return of the catamenia by this means. A refutation therefore, of this opinion would involve the objections to plethora enumerated in the last section, and as it is now generally exploded, there is no necessity for it in this place.

The regular periods of this discharge, as well as its production, have also been ascribed to the

influence of the moon. This opinion is supported by the ingenious doctor Darwin; but it is a little surprising so minute an observer as the doctor should overlook a circumstance, which completely overthrows the conjecture; viz. if lunar influence were the cause of menstruation, it would appear in all women at the same age; and if the zizigies or quadratures of the moon supported its regularity, all women would menstruate at one and the same time. Then to reconcile the time of the commencement with the regularity of menstruation, it will be necessary to have all our females born on the same day of the moon; which is absurd.

I am of opinion, that the periodical return of the catamenia can only be explained, on the principle of association of motions, or the power of habit. By this power we understand, a principle of the animal œconomy, by which the system in general, or any particular system or part of it is enabled, by the repetition of some motion or action, to perform at regular periods the same motion or action, until interrupted by some more powerful agent. Thus the catamenia, for some time after its first appearance, is generally irregular; but after the establishment of its periods by the power of habit, it preserves its regularity, unless interrupted by some more powerful stimulus, as pregnancy, lactation or other causes which produce disease.

The venereal passion, having once effected

menstruation, which is ^{periodically} ~~particularly~~ continued by the power of habit, becomes less forcible, being assisted by the power of association, and in a degree superceded by it. But not satisfied with the performance of this part of its great design, it continues in a steady execution of another no less important office, namely, that of prompting to an intercourse with the other sex. Thus we are led to behold it in all its operations as the grand instrument in the great work of procreation.

SECTION III.

Of the Use of Menstruation.

SOME, from a mistaken notion held forth among the Jews, of the poisonous nature of menstrual blood, believe, as was hinted before, that this function, having served the purpose of eliminating a poison from the female system, served as a mark of their inferiority to man, and was a curse inflicted on the whole female race, since the temptation of our common mother in the garden of Eden. This, a mere superstitious flight of imagination, is in direct opposition to truth and the dignity of human nature. In the human male and female taken collectively, this effusion of blood seems rather to serve as one of the distinguishing marks of mankind from the brute creation: because no animals, but a few

which make a ~~near~~ approach to humanity, have this discharge in any kind of perfection. Let those then, whose icy bosoms afford no shelter to the fair, cease to condemn them because of a blessing; and let the fair soother of human woe cease to blush at an imaginary inferiority.

Others have doubted whether the catamenia served any other purpose in the female œconomy, than being a token of that state, which Horace calls "*tempestiva viro.*" They contend, that it cannot be of any service in preparing the uterus for conception, because other animals, that do not menstruate, conceive. Neither can it be necessary to the nutrition of the fœtus, because in the early months of pregnancy it is so small, as not to require so large a quantity of blood for its support. Similar reasons are also opposed to its utility in lactation.

From a well known circumstance, of conception most generally taking place, at or nigh the time of menstruation, it is abundantly evident, that it must by some means be instrumental in that important process. This every woman, who has been a mother, knows to be fact; from this they keep their reckoning, and are not more frequently deceived, than the mariner, whose journal is kept from observation of the sun's attitude.

The necessity for this uterine determination to nourish the fœtus during pregnancy, and the

infant by the mother's milk, is manifest from its total absence while they continue. The weaker is overcome by the action of a stronger stimulus; thus conception and pregnancy, being more powerful stimuli than the powers which produce the catamenia and support its regularity, put a temporary stop to their usual course, and opens another outlet for them by way of the fœtus: and from the wonderful consent between the uterus and mammæ, the latter are brought into action by the instrumentality of the former, and the determination is sent to them for the purpose of lactescency. When the mother does not incline to nurse her child, and the milk instead of being encouraged, be repelled, the menses after delivery resume their wonted course. But if she, as nature has designed, suckles her child, she should be careful to wean it about the time that this complete determination to the mammæ ceases to prevail: this may be known from the milk losing its alimentary qualities and dwindling away; but above all by its returning to the uterus, a happy omen of a renewed aptitude to conception, and a welcome signal to resume the great work of procreation.

From the powerful stimulus of fœcundation, we are enabled to account for the want of influence of the semen masculinum upon the female after impregnation, for the suspension of phthisis pulmonalis and other chronic diseases, during gestation. From the sympathy between the stomach and uterus, nausea and breeding sick-

ness arise in the early months of pregnancy ; probably from a part of the determination , not necessary to supply the embryo at this time so small, being sent to the stomach.

Opposed to this opinion of the final cause of menstruation, are pretended facts of conception and child-bearing before its appearance ; those being very rare and very improbable, we are disposed to doubt. But were they well authenticated, it would be a strong proof of the production of the menses by venereal propensity, and would admit of an easy explanation, consistent with our doctrine : we would say, that a determination to the uterus had commenced, although it had not been of sufficiently long duration to effect an effusion of blood ; or perhaps this effusion was prevented, by conception taking place at the very time it would have appeared.

Another objection, to this final destination of the menses is, as was before hinted, that females of other species of animals do not menstruate, yet conception, nutrition of the fœtus and lactation, proceed with as much certainty in the brute, as in the human creation. But menstruation is, I believe, by no means confined to the human female. The monkey and some others are known to discharge red blood ; and all other animals have at certain stated times a transfusion of the thinner parts of the blood from the uterus. At this time, like women, they are only suf-

ceptible of impregnation. Thus all female animals may be said to menstruate ; but menstruation would be too definite a ~~time~~ *term* to express its general meaning, seeing that its periods differ in different animals from one month to nine, twelve and more. Perhaps to call it a periodical effusion would be sufficiently expressive.

As to the nature of the periodical discharge from the uterus of other animals, it appears to differ from the common secreted fluid that lubricates the parts, in being much more abundant and frequently tinged with the red particles of the blood. The reason why it is not entire blood, seems to be the less vascularity of their uteri ; and probably the horizontal position of their bodies, in some degree prevents it. The final cause, why it should not be pure blood, I am inclined to think is, that a complete menstrual discharge is confined to the human female, on account of its being necessary to the evolution of a more perfect animal : and thus women, instead of being degraded below, seems rather elevated above the scale of humanity.

Whether the fœtus in utero be supported by an immediate communication or absorption of blood from the mother, or by the secretion of that fluid, called liquor amnii, or by both, still there is the same necessity for the menses or an uterine determination. No reason therefore, appears so strong, as to effect a desertion of Galen's opinion of the final cause of menstruation,

who says "the menses yield nourishment to the embryo, when suppressed by conception."

A priori, the abortion of the fœtus can be explained; an uterine hemorrhagy, by carrying off the blood necessary to its subsistence, deprives it of life.

Before I conclude, let me offer a grateful tribute of respect to the worthy, learned and indefatigable teachers in this university. To be instructed, by such able professors, in the different branches of medical science, must be considered as the grand æra in the life of a physician.



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